

NOTE ON THE HISTORY OF THE MAP-COLORING
PROBLEM.

THE map-coloring problem has recently been recalled to mind by some questions in the *Intermédiaire des Mathématiciens* and a paper by Mr. P. J. Heawood in the *Quarterly Journal of Mathematics*. Judging from the references given in these places, which mention merely Cayley and De Morgan among the earlier writers on the subject, it does not seem to be generally known that Möbius discussed the question, in a slightly different form, in his lectures in 1840. A note by Professor Baltzer, entitled, "Eine Erinnerung an Möbius und seinen Freund Weiske," relates how the problem was propounded to Möbius by his friend, Professor Weiske, the philologist, and is to be found in the *Berichte der Sächsischen Gesellschaft der Wissenschaften zu Leipzig. Mathematisch-physische Classe.* Bd. 37, 1885, pp. 1-6.

ISABEL MADDISON.

BRYN MAWR COLLEGE.
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NOTES.

A REGULAR meeting of the AMERICAN MATHEMATICAL SOCIETY was held in New York on Saturday afternoon, March 27, at three o'clock, the Vice-President, Professor R. S. WOODWARD, in the chair. There were seventeen members present. On the recommendation of the Council, the following persons, nominated at the preceding meeting, were elected to membership: Mr. WILLIAM FREELAND, Harvard School, New York, N. Y.; Mr. GILBERT HARRISON JOHN HURST, Eton College, Windsor, England. Four nominations for membership were received. The amendments to the Constitution and By-Laws recommended by the Council at the preceding meeting were unanimously adopted.

The following papers were read:—

- (1) Mr. M. B. PORTER: "On the roots of the hypergeometric series."
- (2) Mr. JOSEPH COTTIER: "On the expression of the general equations of hydrodynamics in terms of curvilinear coordinates."
- (3) Professor JAMES P. PIERPONT: "On modular equations."

THE Council has authorized the organization of a Section of the AMERICAN MATHEMATICAL SOCIETY by those members who may be present at the conference to be held in Chicago on April 24.

THE local committee of the International Congress of Mathematicians to be held at Zürich announces the following general programme: Meetings of the entire Congress will be held on Monday, August 9, and Wednesday, August 11, at which questions of a more general character will be discussed. Papers dealing with special subjects will be presented before the various sections on Tuesday, August 10. The Congress will direct its attention not only to purely scientific questions, but also to matters of an executive and business nature, such as questions of bibliography, lexicography, terminology, coöperative scientific undertakings, including historical investigations, comprehensive reports, the publication of treatises, the holding of expositions, etc. Discussions concerning the relation of mathematics to other branches of science, to the technic arts, to practical life, etc., would also be appropriately included in the proceedings.

PROFESSOR KARL WEIERSTRASS died at Berlin on February 19, aged eighty-one years.

PROFESSOR JAMES JOSEPH SYLVESTER died at London on March 15, aged eighty-three years.

PROFESSOR W. W. HENDRICKSON, of the department of mathematics of the U. S. Naval Academy, has been appointed Superintendent of the American Ephemeris and Nautical Almanac, in succession to Professor SIMON NEWCOMB, who, having reached the age limit fixed by law, was retired on March 12.

UNIVERSITY OF BERLIN. The mathematical courses announced for the summer semester are the following:—By Professor FUCHS: Applications of elliptic functions; On the representation of functions which are defined by algebraic differential equations.—By Professor SCHWARZ: Arithmetical theory of complex quantities; Differential calculus; Theory of analytic functions; Mathematical colloquium.—By Professor FROBENIUS: Theory of algebraic equations (second part).—By Professor HETTNER: On approximate calculation of definite integrals.—By Professor KNOBLAUCH: Integral calculus; Selected chapters of the theory of elliptic functions; Analytical mechanics.—By

Professor HENSEL: Determinants; On complex multiplication of elliptic functions; Analytic and algebraic methods for complex multiplication of elliptic functions.—By Professor BAUSHINGER: Introduction to celestial mechanics.—By Professor LEHMANN-FILHÉS: Celestial mechanics; Determination of orbits of double stars.—By Professor PLANCK: Exercises in mathematical physics.—By Professor VON BEZOLD: Theoretical meteorology (Statics and dynamics of the atmosphere).—By Dr. HOPPE: Integral calculus; Analytical mechanics.—By Dr. KÖTTER: Analytical geometry of systems and complexes of rays; Kummer's surfaces with sixteen nodes; On parallel and central projection.—By Dr. SCHLESINGER: Theory and applications of definite integrals; Analytical geometry of two and three dimensions.—By Dr. KRIGAR-MENZEL: Hyperbolic functions.—By Dr. GLAN: Quaternions; Elements of theoretical physics; Theory of heat.

HARVARD UNIVERSITY. The following advanced mathematical courses are offered for the year 1897-98:—By Professor J. M. PEIRCE: Quaternions (first course); Surfaces of the First and Second Degrees; The Algebra of Logic†.—By Professor ASAPH HALL (U. S. Navy): The Theory of Planetary Motions.—By Professor BYERLY: Modern Geometry; Rigid Dynamics†.—By Professors BYERLY and B. O. PEIRCE: Fourier's Series, Spherical Harmonics and Potential Function.—By Professor B. O. PEIRCE: Hydrodynamics.—By Professor OSGOOD: Differential and Integral Calculus (second course); Infinite Series and Products†; Elliptic Integrals and Functions†.—By Professor BÔCHER: Theory of Equations and Invariants†; Higher Algebra†; Theory of Functions (first course); Linear Differential Equations.

These courses will each consist of three lectures a week throughout the entire academic year except those marked † which consist of about half this number of lectures. The following courses for Reading and Research are also offered:—By Professor J. M. PEIRCE: Elliott, Algebra of Quantics.—By Professor HALL: The Plasticity of the Earth.—By Professor BYERLY: Picard, *Traité d'Analyse* Vol. I.—By Professor B. O. PEIRCE: Methods in Mathematical Physics.—By Professor OSGOOD: The Elliptic Modular Functions.—By Professor BÔCHER: Topics in Linear Differential Equations.

A Mathematical Conference will meet twice a month.

The more elementary subjects taught will be the same as this year (see BULLETIN for May, 1896).

THE fifth volume of HELMHOLTZ'S "Lectures on theoretical physics" has just appeared; it contains the electromagnetic theory of light. This volume will be followed in order by Part 2 of Vol. I: Dynamics of discrete mass-points, edited by O. Krigar-Menzel; Part 1 of Vol. I: The general principles of the physical sciences, edited by A. König; and Vol. III: Mathematical principles of acoustics, edited by A. König and C. Runge. At a later period may be expected Vol. II: Dynamics of continuous masses, Vol. IV: Electrodynamics and theory of magnetism, and Vol. VI: Theory of heat, all to be edited by O. Krigar-Menzel. L. Voss, of Hamburg, is the publisher.

JOHN WILEY AND SONS have in press a work on the elements of the theory of functions, by Professor A. S. CHESIN, of the Johns Hopkins University.

NEW PUBLICATIONS.

I. HIGHER MATHEMATICS.

- APPELL (P.) et LACOUR (E.). Principes de la théorie des fonctions elliptiques et applications. Paris, Gauthier-Villars, 1896. 8vo. 9 and 421 pp. Fr. 12.00
- BASS (E. W.). Differential calculus. New York, Wiley, 1896. 12mo. \$4.00
- BOHLMANN (G.). See SERRET (J. A.).
- BONNEL (J.). Les hypothèses dans la géométrie; éléments de la théorie atomique. Paris, Gauthier-Villars, 1896. 8vo. Fr. 1.50
- BOUQUET. See BRIOT and BOUQUET.
- BOYD (J. H.). See BRIOT and BOUQUET.
- BRIOT and BOUQUET. The elements of analytical geometry of two dimensions. 14th edition. Authorized English translation by J. H. Boyd. Chicago, Werner School Book Co., 1896. 8vo. 582 pp. Cloth. \$2.00
- DICKSTEIN (S.). See SCHLEGEL (V.).
- EPAPHRODITUS et VITRUVIUS. Traités d'arpentage et de géométrie. Nouveau texte, publié d'après le manuscrit latin 13,084 de la Bibliothèque Royale de Munich par V. Mortet. Avec introduction par P. Tannery. Paris, Gauthier-Villars, 1896. 4to. 4 and 44 pp. avec 2 planches et figures.
- FRICKE (R.). Hauptsätze der Differential- und Integralrechnung. Als Leitfaden zum Gebrauch bei Vorlesungen zusammengestellt. (2 Theile.) Theil I. Braunschweig, Vieweg, 1897. 8vo. 9 and 80 pp. Mk. 2.00
- FURTWÄNGLER (P.). Zur Theorie der in Linearfaktoren zerlegbaren, ganzzahligen ternären cubischen Formen. [Diss.] Göttingen, Vandenhœck, 1897. 8vo. 63 pp. Mk. 1.60